
CDC Definitions of Nosocomial Infections

Definitions of Nosocomial Infections

The ability of data collectors to define infections as nosocomial and identify their sites consistently is of paramount importance. Use of uniform definitions is critical if data from one hospital are to be compared with those of another hospital or with an aggregated database (such as the NNIS system).¹⁻³ The NNIS system defines a nosocomial infection as a localized or systemic condition 1) that results from adverse reaction to the presence of an infectious agent(s) or its toxin(s) and 2) that was not present or incubating at the time of admission to the hospital (7, and *NNIS Manual*, Section XIII, May 1994, unpublished). For most bacterial nosocomial infections, this means that the infection usually becomes evident 48 hours (i.e., the typical incubation period) or more after admission. However, because the incubation period varies with the type of pathogen and to some extent with the patient's underlying condition, each infection must be assessed individually for evidence that links it to the hospitalization.

There are several other important principles upon which nosocomial infection definitions are based.¹ First, the information used to determine the presence and classification of an infection should be a combination of clinical findings and results of laboratory and other tests. Clinical evidence is derived from direct observation of the infection site or review of other pertinent sources of data, such as the patient's chart (detailed in a later section of this chapter). Laboratory evidence includes results of cultures, antigen or antibody detection tests, or microscopic visualization. Supportive data are derived from other diagnostic studies, such as x-ray, ultrasound, computed tomography (CT) scan, magnetic resonance imaging (MRI), radiolabel scan, endoscopic procedure, biopsy, or needle aspiration. For infections whose clinical manifestations in neonates and infants are different from those in older persons, specific criteria apply.

Second, a physician's or surgeon's diagnosis of infection derived from direct observation during a surgical operation, endoscopic examination, or other diagnostic studies or from clinical judgment is an acceptable criterion for an infection, unless there is

compelling evidence to the contrary (e.g., information written in the wrong patient's record, presumptive diagnosis that was not substantiated by subsequent studies). For certain sites of infection, however, a physician's clinical diagnosis in the absence of supportive data must be accompanied by initiation of appropriate antimicrobial therapy to satisfy the criterion.

There are two special situations in which an infection is considered nosocomial: (a) infection that is acquired in the hospital but does not become evidence until after hospital discharge and (b) infection in a neonate that results from passage through the birth canal.

There are two special situations in which an infection is not considered nosocomial: (a) infection that is associated with a complication or extension of infection already present on admission, unless a change in pathogen or symptoms strongly suggests the acquisition of a new infection, and (b) in an infant, an infection that is known or proved to have been acquired transplacentally (e.g., toxoplasmosis, rubella, cytomegalovirus, or syphilis) and becomes evident at or before 48 hours after birth.

There are two conditions that are not infections: 1) *colonization*, which is the presence of microorganisms (on skin, mucous membranes, in open wounds, or in excretions or secretions) that are not causing adverse clinical signs or symptoms, and 2) *inflammation*, which is a condition that results from tissue response to injury or stimulation by noninfectious agents, such as chemicals.

The information that follows contains the criteria that comprise the definitions of nosocomial infections (*NNIS Manual*, Section XIII, May 1994, unpublished). It lists the 13 major site categories and the 48 specific sites or types of infection for which criteria have been developed, beginning with the most frequently occurring sites of infection in hospitalized patients—urinary tract, surgical site, pneumonia, and primary bloodstream—followed by other sites of infection lists alphabetically by major site category (e.g., bone and joint, central nervous system).

Two additional points are important to understand with regard to definitions of nosocomial infections.⁴ First, the preventability or inevitability of an infection is

not a consideration when determining whether it is nosocomial. For example, preventing the development of nosocomial. For example, preventing the development of nosocomial *C. difficile* gastroenteritis after extensive antibiotic treatment may not be possible. As another example, some would argue that neonatal infections acquired during vaginal delivery are inevitable and, therefore, should not be counted as nosocomial. However, as noted above, these neonatal infections (e.g., group B streptococcal bacteremias with early onset) are considered nosocomial, they can be identified as maternally acquired, and the analysis of their incidence can be disseminated to obstetricians for interventional strategies. Second, surveillance definitions are not intended to define clinical disease for the purpose of making therapeutic decisions. Some true infections will, therefore, be missed while other conditions may erroneously be counted as infections.

Listing of Major and Specific Site Codes and Descriptions

UTI Urinary Tract Infection

SUTI Symptomatic urinary tract infection
ASB Asymptomatic bacteriuria
OUTI Other infections of the urinary tract

SSI Surgical Site Infection

SKIN Superficial incisional site, except after CBGB
SKNC After CBGB, report SKNC for superficial incisional infection at chest incision site
SKNL After CBGB, report SKNL for superficial incisional infection at leg (donor) site
ST Deep incisional surgical site infection, except after CBGB
STC After CBGB, report STC for deep incisional surgical site infection at chest incision site
STL After CBGB, report STL for deep incisional surgical site infection at leg (donor) site
Organ/Space surgical site infection
Indicate specific site:
BONE, BRST, CARD, DISC, EAR, EMET, ENDO, EYE, GIT, IAB, IC, JNT, LUNG, MED, MEN, ORAL, OREP, OUTI, SA, SINU, UR, VASC, VCUF

PNEU Pneumonia

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BSI Bloodstream Infection

LCBI Laboratory-confirmed bloodstream infection

CSEP Clinical sepsis

BJ Bone and Joint Infection

BONE Osteomyelitis
JNT Joint or bursa
DISC space

CNS Central Nervous System Infection

IC Intracranial infection
MEN Meningitis or ventriculitis
SA Spinal abscess without meningitis

CVS Cardiovascular System Infection

VASC Arterial or venous infection
ENDO Endocarditis
CARD Myocarditis or pericarditis
MED Mediastinitis

EENT Eye, Ear, Nose, Throat, or Mouth Infection

CONJ Conjunctivitis
EYE, other than conjunctivitis
EAR, mastoid
ORAL cavity (mouth, tongue, or gums)
SINU Sinusitis
UR Upper respirator tract, pharyngitis, laryngitis, epiglottitis

GI Gastrointestinal System Infection

GE Gastroenteritis
GIT GI tract
HEP Hepatitis
IAB Intraabdominal, not specified elsewhere
NEC Necrotizing enterocolitis

LRI Lower Respiratory Tract Infection, Other Than Pneumonia

BRON Bronchitis, tracheobronchitis, tracheitis, without evidence of pneumonia
LUNG Other infections of the lower respiratory tract

REPR Reproductive Tract Infection

EMET Endometritis
EPIS Episiotomy
VCUF Vaginal cuff
OREP Other infections of the male or female reproductive tract

SST Skin and Soft Tissue Infection

SKIN Skin
ST Soft tissue
DECU Decubitus ulcer
BURN
BRST Breast abscess or mastitis
UMB Omphalitis
PUST Infant pustulosis
CIRC Newborn circumcision

SYS Systemic Infection

DI Disseminated infection

Definitions of Infection Sites

INFECTION SITE: Symptomatic urinary tract infection

CODE: UTI-SUTI

DEFINITION: A symptomatic urinary tract infection must meet at least one of the following criteria:

- Criterion 1: Patient has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), urgency, frequency, dysuria, or suprapubic tenderness *and* patient has a positive urine culture, that is, $\geq 10^5$ microorganisms per cm^3 or urine with no more than two species of microorganisms.
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), urgency, frequency, dysuria, or suprapubic tenderness *and* at least *one* of the following:
- positive dipstick for leukocyte esterase and/or nitrate
 - pyuria (urine specimen with ≥ 10 wbc/ mm^3 or ≥ 3 wbc/high power field of unspun urine)
 - organisms seen on Gram stain of unspun urine
 - at least *two* urine cultures with repeated isolation of the same uropathogen (gram-negative bacteria or *S. saprophyticus*) with $\geq 10^2$ colonies/ml in nonvoided specimens
 - $\leq 10^5$ colonies/ml of a single uropathogen (gram-negative bacteria or *S. saprophyticus*) in a patient being treated with an effective antimicrobial agent for a urinary tract infection
 - physician diagnosis of a urinary tract infection
 - physician institutes appropriate therapy for a urinary tract infection.
- Criterion 3: Patient ≤ 1 year of age has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, dysuria, lethargy, or vomiting *and* patient has a positive urine culture, that is, $\geq 10^5$ microorganisms per cm^3 of urine with no more than two species of microorganisms.

- Criterion 4: Patient ≤ 1 year of age has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, dysuria, lethargy, or vomiting *and* at least *one* of the following:
- positive dipstick for leukocyte esterase and/or nitrate
 - pyuria (urine specimen with ≥ 10 wbc/ mm^3 or >3 wbc/high power field of unspun urine)
 - organisms seen on gram stain or unspun urine
 - at least *two* urine cultures with repeated isolation of the same uropathogen (gram-negative bacteria or *S. saprophyticus*) with $\geq 10^2$ colonies/ml in nonvoided specimens
 - $\leq 10^5$ colonies/ml of a single uropathogen (gram-negative bacteria or *S. saprophyticus*) in a patient being treated with an effective antimicrobial agent for a urinary tract infection
 - physician diagnosis of a urinary tract infection
 - physician institutes appropriate therapy for a urinary tract infection.

COMMENTS:

- A positive culture of a urinary catheter tip is *not* an acceptable laboratory test to diagnose a urinary tract infection.
- Urine cultures must be obtained using appropriate technique, such as clean catch collection or catheterization.
- In infants, a urine culture should be obtained by bladder catheterization or suprapubic aspiration; a positive urine culture from a bag specimen is unreliable and should be confirmed by a specimen aseptically obtained by catheterization or suprapubic aspiration.

INFECTION SITE: Asymptomatic bacteriuria

CODE: UTI-ASB

DEFINITION: An asymptomatic bacteriuria must meet at least one of the following criteria:

- Criterion 1: Patient has had an indwelling urinary catheter within 7 days before the culture *and* patient has a positive urine culture, that is, $\geq 10^5$ microorganisms per cm^3 of urine with no more than two species of microorganisms *and*

patient has *no* fever ($>38^{\circ}\text{C}$), urgency, frequency, dysuria, or suprapubic tenderness.

- Criterion 2: Patient has *not* had an indwelling urinary catheter within 7 days before the first positive culture
and
 patient has had a least *two* positive urine cultures, that is, $\geq 10^5$ microorganisms per cm^3 of urine with repeated isolation of the same microorganism and no more than two species of microorganisms
and
 patient has *no* fever ($>38^{\circ}\text{C}$), urgency, frequency, dysuria, or suprapubic tenderness.

COMMENTS:

- A positive culture of a urinary catheter tip is *not* an acceptable laboratory test to diagnose bacteriuria.
- Urine cultures must be obtained using appropriate technique, such as clean catch collection or catheterization.

INFECTION SITE: Other infections of the urinary tract (kidney, ureter, bladder, urethra, or tissues surrounding the retroperitoneal or perinephric spaces)

CODE: SUTI-OUTI

DEFINITION: Other infections of the urinary tract must meet at least one of the following criteria:

- Criterion 1: Patient has organisms isolated from culture of fluid (other than urine) or tissue from affected site.
- Criterion 2: Patient has an abscess or other evidence of infection seen on direct examination, during a surgical operation, or during a histopathologic examination.
- Criterion 3: Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), localized pain, or localized tenderness at the involved site
and
 at least *one* of the following:
- purulent drainage from affected site
 - organisms cultured from blood that are compatible with suspected site of infection
 - radiographic evidence of infection, e.g., abnormal ultrasound, CT scan, magnetic resonance imaging (MRI), or radiolabel scan (gallium, technetium)

- physician diagnosis of infection of the kidney, ureter, bladder, urethra, or tissues surrounding the retroperitoneal or perinephric space
- physician institutes appropriate therapy for an infection of the kidney, ureter, bladder, urethra, or tissues surrounding the retroperitoneal or perinephric space.

- Criterion 4: Patient ≥ 1 year of age has at least one of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, lethargy, or vomiting
and
 at least *one* of the following:
- purulent drainage from affected site
 - organisms cultured from blood that are compatible with suspected site of infection
 - radiographic evidence of infection, e.g., abnormal ultrasound, CT scan, magnetic resonance imaging (MRI), or radiolabel scan (gallium, technetium)
 - physician diagnosis of infection of the kidney, ureter, bladder, urethra, or tissues surrounding the retroperitoneal or perinephric space
 - physician institutes appropriate therapy for an infection of the kidney, ureter, bladder, urethra, or tissues surrounding the retroperitoneal or perinephric space.

REPORTING INSTRUCTION:

- Report infections following circumcision in newborns as SST-CIRC.

INFECTION SITE: Surgical site infection (Superficial incisional) (see Fig. A-1)

CODE: SSI-(SKIN) except following the NNIS operative procedure, CBGB^a. For CBGB only, if infection is at chest site, use SKNC (Skin-Chest) or if at leg (donor) site, use SKNL (Skin-Leg)

DEFINITION: A superficial SSI must meet the following criterion: Infection occurs within 30 days after the operative procedure
and
 involves only skin and subcutaneous tissue of the incision
and
 patient has at least *one* of the following:

- purulent draining from the superficial incision

- b. organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision
- c. at least one of the following signs or symptoms of infection: pain or tenderness, localized swelling, redness, or heat, *and* superficial incision is deliberately opened by surgeon, *unless* incision is culture-negative
- d. diagnosis of superficial incisional SSI by the surgeon or attending physician

REPORTING INSTRUCTIONS:

- Do *not* report a stitch abscess (minimal inflammation and discharge confined to the points of suture penetration) as an infection
- Do not report a localized stab wound infection as SSI, instead report as skin or soft tissue infection, depending on its depth.
- Report infection of the circumcision site in newborns as SST-CIRC. Circumcision is not a NNIS operative procedure.
- Report infection of the episiotomy site as REPR-EPIS. Episiotomy is not a NNIS operative procedure.
- Report infected burn wound as SST-BURN.

- If the incisional site infection involves or extends into the fascial and muscle layers, report as a deep incisional SSI.
- Classify infection that involves *both* superficial and deep incision sites as deep incisional SSI.
- Report culture specimen from superficial incisions as ID (incisional drainage).

INFECTION SITE: Surgical site infection (Deep incisional) (Figure A-1)

CODE: SSI-(ST [Soft Tissue]) except following the NNIS operative procedure, CBGB.* For CBGB only, if infection is at chest site, use STC (Soft Tissue-Chest) or if at leg (donor) site, use STL (Soft Tissue-Leg)

DEFINITION: A deep incisional SSI must meet the following criterion:
Infection occurs within 30 days after the operative procedure if no implant[†] is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure *and*

*CBGB = coronary artery bypass graft with both chest and leg incisions.

[†]A nonhuman derived implanted foreign body (e.g., prosthetic heart valve, nonhuman vascular graft, mechanical heart, or hip prosthesis) that is permanently placed in a patient during surgery.

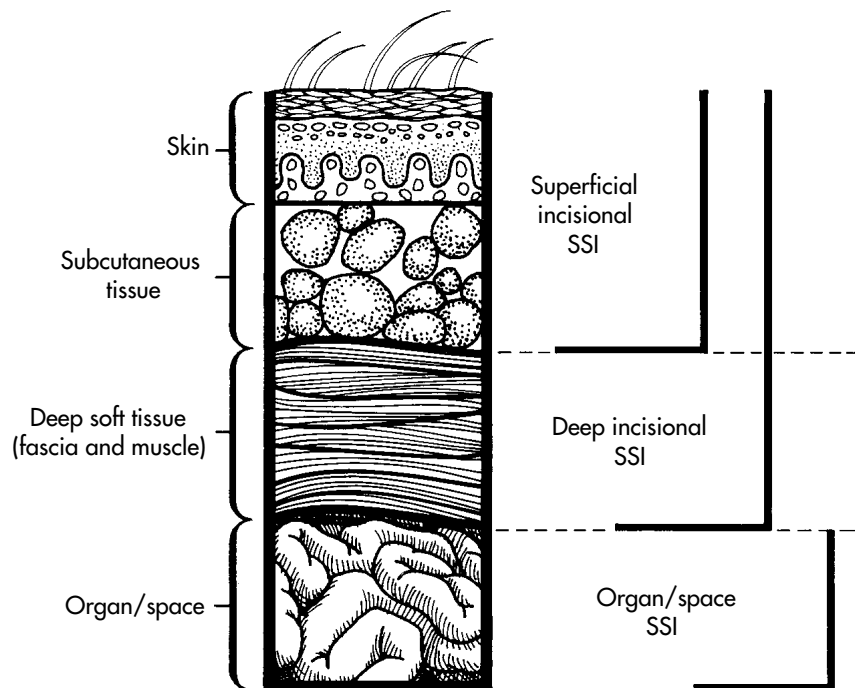


Fig. A-1 Schematic of the anatomy of SSIs and their appropriate classifications.

involves deep soft tissues (e.g., fascial and muscle layers) of the incision

and

patient has at least *one* of the following:

- a. purulent drainage from the deep incision but not from the organ/space component of the surgical site
- b. a deep incision spontaneously dehisces or is deliberately opened by a surgeon when the patient has at least one of the following signs or symptoms: fever ($>38^{\circ}\text{C}$), or localized pain or tenderness, *unless* incision is culture-negative
- c. an abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination
- d. diagnosis of a deep incisional SSI by a surgeon or attending physician

REPORTING INSTRUCTIONS:

- Classify infection that involves *both* superficial and deep incision sites as deep incisional SSI.
- Report culture specimen from deep incisions as ID (incisional drainage).

INFECTION SITE: Surgical site infection (Organ/Space)

CODE: SSI-(Specific site of organ/space).

DEFINITION: An organ/space SSI involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure. Specific sites are assigned to organ/space SSI to further identify the location of the infection. Listed on this page are the specific sites that must be used to differentiate organ/space SSI. An example is appendectomy with subsequent subdiaphragmatic abscess, which would be reported as an organ/space SSI at the intraabdominal specific site (SSI-IAB).

An organ/space SSI must meet the following criterion:

Infection occurs within 30 days after the operative procedure if no implant* is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure and

infection involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure

and

patient has at least *one* of the following:

- a. purulent drainage from a drain that is placed through a stab wound into the organ/space
- b. organisms isolated from an aseptically obtained culture or fluid or tissue in the organ/space
- c. an abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathologic or radiologic examination
- d. diagnosis of an organ/space SSI by a surgeon or attending physician

REPORTING INSTRUCTIONS:

- Occasionally an organ/space infection drains through the incision. Such infection generally does not involve reoperation and is considered a complication of the incision. Therefore, it is classified as a deep incisional SSI.
- Report culture specimen from organ/space as DD (deep drainage).

The following are specific sites of an organ/space SSI:

Code	Site	Code	Site
BONE	Osteomyelitis	MED	Mediastinitis
BRST	Breast abscess or mastitis	MEN	Meningitis or ventriculitis
CARD	Myocarditis or pericarditis	ORAL	Oral cavity (mouth, tongue, or gums)
DISC	Disc space	OREP	Other male or female reproductive
EAR	Ear, mastoid	OUTI	Other infections of the urinary tract
EMET	Endometritis	SA	Spinal abscess without meningitis
ENDO	Endocarditis	SINU	Sinusitis
EYE	Eye, other than conjunctivitis	UR	Upper respiratory tract, pharyngitis
GIT	GI tract	VASC	Arterial or venous infection
IAB	Intraabdominal, not specified elsewhere	VCUF	Vaginal cuff
IC	Intracranial, brain abscess or dura		
JNT	Joint or bursa		
LUNG	Other infections of the lower respiratory tract		

INFECTION SITE: Pneumonia

CODE: PNEU-PNEU

*A nonhuman derived implanted foreign body (e.g., prosthetic heart valve, nonhuman vascular graft, mechanical heart or hip prosthesis) that is permanently placed in a patient during surgery.

DEFINITION: Pneumonia must meet at least one of the following criteria:

- Criterion 1: Patient has rales or dullness to percussion on physical examination of the chest
and
at least *one* of the following:
- new onset of purulent sputum or change in character of sputum
 - organisms cultured from blood
 - isolation of an etiologic agent from a specimen obtained by transtracheal aspirate, bronchial brushing, or biopsy.
- Criterion 2: Patient has a chest radiographic examination that shows new or progressive infiltrate, consolidation, cavitation, or pleural effusion
and
at least *one* of the following:
- new onset of purulent sputum or change in character of sputum
 - organisms cultured from blood
 - isolation of an etiologic agent from a specimen obtained by transtracheal aspirate, bronchial brushing, or biopsy
 - isolation of virus from or detection of viral antigen in respiratory secretions
 - diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen
 - histopathologic evidence of pneumonia.
- Criterion 3: Patient ≤ 1 year of age has at least *two* of the following signs or symptoms: apnea, tachypnea, bradycardia, wheezing, rhonchi, or cough
and
at least *one* of the following:
- increased production of respiratory secretions
 - new onset of purulent sputum or change in character of sputum
 - organisms cultured from blood or diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen
 - isolation of an etiologic agent from a specimen obtained by transtracheal aspirate, bronchial brushing, or biopsy
 - isolation of virus or detection of viral antigen in respiratory secretions
 - histopathologic evidence of pneumonia.

- Criterion 4: Patient ≤ 1 year of age has a chest radiologic examination that shows new or progressive infiltrate, cavitation, consolidation, or pleural effusion
and
at least *one* of the following:
- increased production of respiratory secretions
 - new onset of purulent sputum or change in character of sputum
 - organisms cultured from blood or diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen
 - isolation of an etiologic agent from a specimen obtained by transtracheal aspirate, bronchial brushing, or biopsy
 - isolation of virus from or detection of viral antigen in respiratory secretions
 - histopathologic evidence of pneumonia

COMMENTS:

- Expectorated sputum cultured are *not* useful in the diagnosis of pneumonia but may help identify the etiologic agent and provide useful antimicrobial susceptibility data.
- Findings from serial chest x-rays may be more helpful than a single x-ray.

REPORTING INSTRUCTIONS:

- Report acute bronchitis as BRON.
- Report lung abscess or empyema as LUNG.

INFECTION SITE: Laboratory-confirmed bloodstream infection

CODE: BSI-LCBI

DEFINITION: Laboratory-confirmed bloodstream infection must meet at least one of the following criteria:

- Criterion 1: Patient has a recognized pathogen cultured from one or more blood cultures
and
organism cultured from blood is *not* related to an infection at another site.
- Criterion 2: Patient has at least *one* of the following signs or symptoms: fever ($>38^{\circ}$ C), chills, or hypotension
and
at least *one* of the following:
- common skin contaminant (e.g., diphtheroids, *Bacillus* sp., *Propionibacterium* sp., coagulase-negative staphylococci, or micrococci) is cultured from two or

- more blood cultures drawn on separate occasions
- b. common skin contaminant (e.g., diphtheroids, *Bacillus* sp., *Propionibacterium* sp., coagulase-negative staphylococci, or micrococci) is cultured from at least one blood culture from a patient with an intravascular line, and the physician institutes appropriate antimicrobial therapy
 - c. positive antigen test on blood (e.g., *H. influenzae*, *S. pneumoniae*, *N. meningitidis*, or group B *Streptococcus*) *and* signs and symptoms and positive laboratory results are *not* related to an infection at another site.
- Criterion 3:** Patient ≤ 1 year of age has at least *one* of the following signs or symptoms: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, or bradycardia *and* at least *one* of the following:
- a. common skin contaminant (e.g., diphtheroids, *Bacillus* sp., *Propionibacterium* sp., coagulase-negative staphylococci, or micrococci) is cultured from *two* or more blood cultures drawn on separate occasions
 - b. common skin contaminant (e.g., diphtheroids, *Bacillus* sp., *Propionibacterium* sp., coagulase-negative staphylococci, or micrococci) is cultured from at least one blood culture from a patient with an intravascular line, and physician institutes appropriate antimicrobial therapy
 - c. positive antigen test on blood (e.g., *H. influenzae*, *S. pneumoniae*, *N. meningitidis*, or group B *Streptococcus*) *and* signs and symptoms and positive laboratory results are *not* related to an infection at another site.

REPORTING INSTRUCTIONS:

- Report purulent phlebitis confirmed with a positive semiquantitative culture of a catheter tip, but with either negative or no blood culture, as CVS-VASC.
- Report organisms cultured from blood as BSI-LCBI when no other site of infection is evident.
- Pseudobacteremias are not nosocomial infections.

INFECTION SITE: Clinical sepsis

CODE: BSI-CSEP

DEFINITION: Clinical sepsis must meet at least one of the following criteria:

- Criterion 1:** Patient has at least *one* of the following clinical signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypotension (systolic pressure ≤ 90 mm), or oliguria ($<20\text{ cm}^3/\text{hr}$) *and* blood culture *not* done or *no* organisms or antigen detected in blood *and* no apparent infection at another site *and* physician institutes treatment for sepsis.
- Criterion 2:** Patient ≤ 1 year of age has at least *one* of the following clinical signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, or bradycardia *and* blood culture *not* done or *no* organisms or antigen detected in blood *and* no apparent infection at another site *and* physician institutes treatment for sepsis.

REPORTING INSTRUCTION:

- Report culture-positive infections of the blood stream as BSI-LCBI.

INFECTION SITE: Osteomyelitis

CODE: BJ-BONE

DEFINITION: Osteomyelitis must meet at least one of the following criteria:

- Criterion 1:** Patient has organisms cultured from bone.
- Criterion 2:** Patient has evidence of osteomyelitis on direct examination of the bone during a surgical operation or histopathologic examination.
- Criterion 3:** Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), localized swelling, tenderness, heat, or drainage at suspected site of bone infection *and* at least *one* of the following:
- a. organisms cultured from blood
 - b. positive blood antigen test (e.g., *H. influenzae*, *S. pneumoniae*)

- c. radiographic evidence of infection, e.g., abnormal findings on x-ray, CT scan, magnetic resonance imaging (MRI), radiolabel scan (gallium, technetium, etc.).

INFECTION SITE: Joint or bursa

CODE: BJ-JNT

DEFINITION: Joint or bursa infections must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from joint fluid or synovial biopsy.
- Criterion 2: Patient has evidence of joint or bursa infection seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has at least *two* of the following signs or symptoms with no other recognized cause: joint pain, swelling, tenderness, heat, evidence of effusion or limitation of motion
and
at least *one* of the following:
 - a. organisms *and* white blood cells seen on Gram stain of joint fluid
 - b. positive antigen test on blood, urine, or joint fluid
 - c. cellular profile and chemistries of joint fluid compatible with infection and *not* explained by an underlying rheumatologic disorder
 - d. radiographic evidence of infection, e.g., abnormal findings on x-ray, CT scan, magnetic resonance imaging (MRI), radiolabel scan (gallium, technetium, etc.).

INFECTION SITE: Disc space

CODE: BJ-DISC

DEFINITION: Vertebral disc space infection must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from vertebral disc space tissue obtained during a surgical operation or needle aspiration.
- Criterion 2: Patient has evidence of vertebral disc space infection seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has fever ($>38^{\circ}\text{C}$) with no other recognized cause or pain at the involved vertebral disc space
and
radiographic evidence of infection, e.g., abnormal findings on x-ray, CT scan, magnetic resonance imaging (MRI),

radiolabel scan with gallium or technetium.

- Criterion 4: Patient has fever ($>38^{\circ}\text{C}$) with no other recognized cause and pain at the involved vertebral disc space
and
positive antigen test on blood or urine (e.g., *H. influenzae*, *S. pneumoniae*, *N. meningitidis*, or group B *Streptococcus*).

INFECTION SITE: Intracranial infection (brain abscess, subdural or epidural infection, encephalitis)

CODE: CNS-IC

DEFINITION: Intracranial infection must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from brain tissue or dura.
- Criterion 2: Patient has an abscess or evidence of intracranial infection seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has at least *two* of the following signs or symptoms with no other recognized cause: headache, dizziness, fever ($>38^{\circ}\text{C}$), localizing neurologic signs, changing level of consciousness, or confusion
and
if diagnosis is made antemortem, physician institutes appropriate antimicrobial therapy
and
at least *one* of the following:
 - a. organisms seen on microscopic examination of brain or abscess tissue obtained by needle aspiration or by biopsy during a surgical operation or autopsy
 - b. positive antigen test on blood or urine
 - c. radiographic evidence of infection, e.g., abnormal findings on ultrasound, CT scan, magnetic resonance imaging (MRI), radionuclide brain scan, or arteriogram
 - d. diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.
- Criterion 4: Patient ≤ 1 year of age has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, localizing neurologic signs, or changing level of consciousness
and

if diagnosis is made antemortem,
physician institutes appropriate
antimicrobial therapy
and
at least *one of the following*:

- organisms seen on microscopic examination of brain or abscess tissue obtained by needle aspiration or by biopsy during a surgical operation or autopsy
- positive antigen test on blood or urine
- radiographic evidence of infection, e.g., abnormal findings on ultrasound, CT scan, magnetic resonance imaging (MRI), radionuclide brain scan, or arteriogram
- diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.

REPORTING INSTRUCTION:

- If meningitis and a brain abscess are present together, report the infection as IC.

INFECTION SITE: Meningitis or ventriculitis

CODE: CNS-MEN

DEFINITION: Meningitis or ventriculitis must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from cerebrospinal fluid (CSF).
- Criterion 2: Patient has at least *one* of the following signs of symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), headache, stiff neck, meningeal signs, cranial nerve signs, or irritability
and
if diagnosis is made antemortem, physician institutes appropriate antimicrobial therapy
and
at least *one* of the following:
- increased white cells, elevated protein and/or decreased glucose in CSF
 - organisms seen on Gram stain of CSF
 - organisms cultured from blood
 - positive antigen test of CSF, blood or urine
 - diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.
- Criterion 3: Patient ≤ 1 year of age has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$)

C), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, stiff neck, meningeal signs, cranial nerve signs, or irritability
and
if diagnosis is made antemortem, physician institutes appropriate antimicrobial therapy
and
at least *one* of the following:

- positive CSF examination with increased white cells, elevated protein and/or decreased glucose
- positive Gram stain of CSF
- organisms cultured from blood
- positive antigen test of CSF, blood or urine
- diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.

REPORTING INSTRUCTIONS:

- Report meningitis in the newborn as nosocomial *unless* there is compelling evidence indicating the meningitis was acquired transplacentally.
- Report CSF shunt infection as SSI-MEN if it occurs ≤ 1 year of placement; if later, report as CNS-MEN.
- Report meningoencephalitis as MEN.
- Report spinal abscess with meningitis as MEN.

INFECTION SITE: Spinal abscess without meningitis

CODE CNS-SA

DEFINITION: An abscess of the spinal epidural or subdural space, without involvement of the cerebrospinal fluid or adjacent bone structures, must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from abscess in the spinal epidural or subdural space.
- Criterion 2: Patient has an abscess in the spinal epidural or subdural space seen during a surgical operation or at autopsy of evidence of an abscess seen during a histopathologic examination.
- Criterion 3: Patient has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), back pain, focal tenderness, radiculitis, paraparesis, or paraplegia
and
if diagnosis is made antemortem, physician institutes appropriate antimicrobial therapy
and
at least *one* of the following:

- a. organisms cultured from blood
- b. radiographic evidence of a spinal abscess, e.g., abnormal findings on myelography, ultrasound, CT scan, magnetic resonance imaging (MRI), or other scans (e.g. gallium, technetium).

REPORTING INSTRUCTION:

- Report spinal abscess *with* meningitis as MEN.

INFECTION SITE: Arterial or venous infection

CODE: CVS-VASC

DEFINITION: Arterial or venous infection must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from arteries or veins removed during a surgical operation
and
blood cultured *not* done or *no* organisms cultured from blood.
- Criterion 2: Patient has evidence of arterial or venous infection seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), pain, erythema, or heat at involved vascular site
and
more than 15 colonies cultured from intravascular cannula tip using semiquantitative culture method
and
blood culture *not* done or *no* organisms cultured from blood.
- Criterion 4: Patient has purulent drainage at involved vascular site
and
blood culture *not* done or *no* organisms cultured from blood.
- Criterion 5: Patient ≤ 1 year of age has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, lethargy, or pain, erythema, or heat at involved vascular site
and
more than 15 colonies cultured from intravascular cannula tip using semiquantitative culture method
and
blood culture *not* done or *no* organisms cultured from blood.

REPORTING INSTRUCTIONS:

- Report infections of an arteriovenous graft, shunt, or fistula or intravascular cannulation site without organisms cultured from blood as CVS-VASC.
- Report intravascular infections with organisms cultured from the blood as BSI-LCBI.

INFECTION SITE: Endocarditis involving either a natural or prosthetic heart valve

CODE: CVS-ENDO

DEFINITION: Endocarditis of a natural or prosthetic heart valve must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from valve or vegetation.
- Criterion 2: Patient has *two* or more of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), new or changing murmur, embolic phenomena, skin manifestations (i.e., petechiae, splinter hemorrhages, painful subcutaneous nodules), congestive heart failure, or cardiac conduction abnormality
and
if diagnosis is made antemortem, physician institutes appropriate antimicrobial therapy
and
at least *one* of the following:
 - a. organisms cultured from *two* or more blood cultures
 - b. organisms seen on Gram stain of valve when culture is negative or *not* done
 - c. valvular vegetation seen during a surgical operation or autopsy
 - d. positive antigen test on blood or urine (e.g., *H. influenzae*, *S. pneumoniae*, *N. meningitidis*, or group B *Streptococcus*)
 - e. evidence of new vegetation seen on echocardiogram.
- Criterion 3: Patient ≤ 1 year of age has *two* or more of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, new or changing murmur, embolic phenomena, skin manifestation (i.e., petechiae, splinter hemorrhages, painful subcutaneous nodules), congestive heart failure, or cardiac conduction abnormality
and

- if diagnosis is made antemortim, physician institutes appropriate antimicrobial therapy
at least *one* of the following:
- organisms cultured from *two* or more blood cultures
 - organisms seen on Gram stain of valve when culture is negative or *not* done
 - valvular vegetation seen during a surgical operation or autopsy
 - positive antigen test on blood or urine (e.g., *H. influenzae*, *S. pneumoniae*, *N. meningitidis*, or group B *Streptococcus*)
 - evidence of new vegetation seen on echocardiogram.

INFECTION SITE: Myocarditis or pericarditis

CODE: CVS-CARD

DEFINITION: Myocarditis or pericarditis must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from pericardial tissue or fluid obtained by needle aspiration or during a surgical operation.
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), chest pain, paradoxical pulse, or increase heart size
and
at least *one* of the following:
- abnormal EKG consistent with myocarditis or pericarditis
 - positive antigen test on blood (e.g., *H. influenzae*, *S. pneumoniae*)
 - evidence of myocarditis or pericarditis on histologic examination of heart tissue
 - fourfold rise in type-specific antibody with or without isolation of virus from pharynx or feces
 - pericardial effusion identified by echocardiogram, CT scan, magnetic resonance imaging (MRI), or angiography.
- Criterion 3: Patient ≤ 1 year of age has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, paradoxical pulse, or increased heart size
and

- at least *one* of the following:
- abnormal EKG consistent with myocarditis or pericarditis
 - positive antigen test on blood (e.g., *H. influenzae*, *S. pneumoniae*)
 - histologic examination of heart tissue shows evidence of myocarditis or pericarditis
 - fourfold rise in type-specific antibody with or without isolation of virus from pharynx or feces
 - pericardial effusion identified by echocardiogram, CT scan, magnetic resonance imaging (MRI), or angiography.

COMMENT:

- Most cases of postcardiac surgery or postmyocardial infarction pericarditis are not infectious.

INFECTION SITE: Mediastinitis

CODE: CVS-MED

DEFINITION: Mediastinitis must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from mediastinal tissue or fluid obtained during a surgical operation or needle aspiration.
- Criterion 2: Patient has evidence of mediastinitis seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), chest pain, or sternal instability
and
at least *one* of the following:
- purulent discharge from mediastinal area
 - organisms cultured from blood or discharge from mediastinal area
 - mediastinal widening on x-ray.
- Criterion 4: Patient ≤ 1 year of age has at least *one* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, or sternal instability
and
at least one of the following:
- purulent discharge from mediastinal area
 - organisms cultured from blood or discharge from mediastinal area
 - mediastinal widening on x-ray.

REPORTING INSTRUCTION:

- Report mediastinitis following cardiac surgery that is accompanied by osteomyelitis as SSI-MED rather than SSI-BONE.

INFECTION SITE: Conjunctivitis

CODE: EENT-CONJ

DEFINITION: Conjunctivitis must meet at least one of the following criteria:

- Criterion 1: Patient has pathogens cultured from purulent exudate obtained from the conjunctiva or contiguous tissues, such as eyelid, cornea, meibomian glands, or lacrimal glands.
- Criterion 2: Patient has pain or redness of conjunctiva or around eye
and
at least *one* of the following:
- WBCs and organisms seen on Gram stain of exudate
 - purulent exudate
 - positive antigen test (e.g., ELISA or IF for *Chlamydia trachomatis*, herpes simplex virus, adenovirus) on exudate or conjunctival scraping
 - multinucleated giant cells seen on microscopic examination of conjunctival exudate or scrapings
 - positive viral culture
 - diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.

REPORTING INSTRUCTIONS:

- Report other infections of the eye as EYE.
- Do *not* report chemical conjunctivitis caused by silver nitrate (AgNO₃) as a nosocomial infection.
- Do *not* report conjunctivitis that occurs as a part of a more widely disseminated viral illness (such as measles, chicken-pox, or a URI).

INFECTION SITE: Eye, other than conjunctivitis

CODE: EENT-EYE

DEFINITION: An infection of the eye, other than conjunctivitis, must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from anterior or posterior chamber of vitreous fluid.
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized cause: eye pain, visual disturbance, or hypopyon

and

at least *one* of the following:

- physician's diagnosis of an eye infection
- positive antigen test on blood (e.g., *H. influenzae*, *S. pneumoniae*)
- organisms cultured from blood.

INFECTION SITE: Ear, mastoid

CODE: EENT-EAR

DEFINITION: Ear and mastoid infections must meet the following applicable criteria:

Otitis externa must meet at least one of the following criteria:

- Criterion 1: Patient has pathogens cultured from purulent drainage from ear canal.
- Criterion 2: Patient has at least *one* of the following signs or symptoms with no other recognized cause: fever (>38° C), pain, redness, or drainage from ear canal
and
organisms seen on Gram stain of purulent drainage.

Otitis media must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from fluid from middle ear obtained by tympanocentesis or at surgical operation.
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized case: fever (>38° C), pain in the eardrum, inflammation, retraction or decreased mobility of eardrum, or fluid behind eardrum.

Otitis interna must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from fluid from inner ear obtained at surgical operation.
- Criterion 2: Patient has a physician's diagnosis of inner ear infection.

Mastoiditis must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from purulent drainage from mastoid.
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever (>38° C), pain, tenderness, erythema, headache, or facial paralysis
and

at least *one* of the following:

- a. organisms seen on Gram stain of purulent material from mastoid
- b. positive antigen test on blood.

INFECTION SITE: Oral cavity (mouth, tongue, or gums)

CODE: EENT-ORAL

DEFINITION: Oral cavity infections must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from purulent material from tissues or oral cavity.
- Criterion 2: Patient has an abscess or other evidence of oral cavity infection seen on direct examination, during a surgical operation, or during a histopathologic examination.
- Criterion 3: Patient has at least *one* of the following signs or symptoms with no other recognized cause: abscess, ulceration, or raised white patches on inflamed mucosa, or plaques on oral mucosa
and
 at least *one* of the following:
- a. organisms seen on Gram stain
 - b. positive KOH (potassium hydroxide) stain
 - c. multinucleated giant cells seen on microscopic examination of mucosal scrapings
 - d. positive antigen test on oral secretions
 - e. diagnostic single antibody tier (IgM) or fourfold increase in paired sera (IgG) for pathogen
 - f. physician diagnosis of infection and treatment with topical or oral antifungal therapy.

REPORTING INSTRUCTION:

- Report nosocomial primary herpes simplex infections of the oral cavity as ORAL; recurrent herpes infections are *not* nosocomial.

INFECTION SITE: Sinusitis

CODE: EENT-SINU

DEFINITION: Sinusitis must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from purulent material obtained from sinus cavity.
- Criterion 2: Patient has at least *one* of the following signs or symptoms with no other

recognized cause: fever ($>38^{\circ}\text{C}$), pain or tenderness over the involved sinus, headache, purulent exudate, or nasal obstruction

and

at least *one* of the following:

- a. positive transillumination
- b. positive radiographic examination.

INFECTION SITE: Upper respiratory tract, pharyngitis, laryngitis, epiglottitis

CODE: EENT-UR

DEFINITION: Upper respiratory tract infections must meet at least one of the following criteria:

- Criterion 1: Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), erythema or pharynx, sore throat, cough, hoarseness, or purulent exudate in throat
and
 at least *one* of the following:
- a. organisms cultured from the specific site
 - b. organisms cultured from blood
 - c. positive antigen test on blood or respiratory secretions
 - d. diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen
 - e. physician's diagnosis of an upper respiratory infection.
- Criterion 2: Patient has an abscess seen on direct examination, during a surgical operation, or during a histopathologic examination.
- Criterion 3: Patient ≤ 1 year of age has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), hypothermia ($<37^{\circ}\text{C}$), apnea, bradycardia, nasal discharge, or purulent exudate in throat
and
 at least *one* of the following:
- a. organisms cultured from the specific site
 - b. organisms cultured from blood
 - c. positive antigen test on blood or respiratory secretions
 - d. diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen
 - e. physician's diagnosis of an upper respiratory infection.

INFECTION SITE: Gastroenteritis

CODE: GI-GE

DEFINITION: Gastroenteritis must meet at least one of the following criteria:

- Criterion 1: Patient has an acute onset of diarrhea (liquid stools for more than 12 hours) with or without vomiting or fever ($>38^{\circ}\text{C}$) and no likely noninfectious cause (e.g., diagnostic tests, therapeutic regimen, acute exacerbation of a chronic condition, or psychologic stress).
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized cause: nausea, vomiting, abdominal pain, or headache
and
at least *one* of the following:
- a. an enteric pathogen is cultured from stool or rectal swab
 - b. an enteric pathogen is detected by routine or electron microscopy
 - c. an enteric pathogen is detected by antigen or antibody assay on blood or feces
 - d. evidence of an enteric pathogen is detected by cytopathic changes in tissue culture (toxin assay)
 - e. diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.

INFECTION SITE: GI tract (esophagus, stomach, small and large bowel and rectum) excluding gastroenteritis and appendicitis

CODE: GI-GIT

DEFINITION: Gastrointestinal tract infections, excluding gastroenteritis and appendicitis, must meet at least one of the following criteria:

- Criterion 1: Patient has an abscess or other evidence of infection seen during a surgical operation or histopathologic examination.
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized cause and compatible with infection of the organ or tissue involved: fever ($>38^{\circ}\text{C}$), nausea, vomiting, abdominal pain, or tenderness
and
at least *one* of the following:
- a. organisms cultured from drainage or tissue obtained during a surgical

operation or endoscopy, or from a surgically placed drain

- b. organisms seen on Gram or KOH stain or multinucleated giant cells seen on microscopic examination of drainage or tissue obtained during a surgical operation or endoscopy or from a surgically placed drain
- c. organisms cultured from blood
- d. evidence of pathologic findings on radiologic examination
- e. evidence of pathologic findings on endoscopic examination (e.g., *Candida* esophagitis or proctitis).

INFECTION SITE: Hepatitis

CODE: GI-HEP

DEFINITION: Hepatitis must meet the following criterion:

Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), anorexia, nausea, vomiting, abdominal pain, jaundice, or history of transfusion within the previous 3 months

and

at least *one* of the following:

- a. positive antigen or antibody test for hepatitis A, hepatitis B, hepatitis C, or delta hepatitis
- b. abnormal liver function tests (e.g., elevated ALT/AST, bilirubin)
- c. Cytomegalovirus (CMV) detected in urine or oropharyngeal secretions.

REPORTING INSTRUCTIONS:

- Do *not* report hepatitis or jaundice of noninfectious origin (e.g., alpha-1 antitrypsin deficiency)
- Do *not* report hepatitis or jaundice that results from exposure to hepatotoxins (alcoholic or acetaminophen-induced hepatitis, etc.).
- Do *not* report hepatitis or jaundice that results from biliary obstruction (cholecystitis).

INFECTION SITE: Intraabdominal, including gallbladder, bile ducts, liver (excluding viral hepatitis), spleen, pancreas, peritoneum, subphrenic or subdiaphragmatic space, or other intraabdominal tissue or area *not* specified elsewhere

CODE: GI-IAB

DEFINITION: Intraabdominal infections must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from purulent material from intraabdominal

- space obtained during a surgical operation or needle aspiration.
- Criterion 2: Patient has abscess or other evidence of intraabdominal infection seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), nausea, vomiting, abdominal pain, or jaundice
and
 at least *one* of the following:
- organisms cultured from drainage from surgically placed drain (e.g., closed suction drainage system, open drain, T-tube drain)
 - organisms seen on Gram stain of drainage or tissue obtained during surgical operation or needle aspiration
 - organisms cultured from blood and radiographic evidence of infection, e.g., abnormal findings on ultrasound, CT scan, magnetic resonance imaging (MRI), or radiolabel scans (e.g., gallium, technetium) or on abdominal x-ray.

REPORTING INSTRUCTION:

- Do *not* report pancreatitis (an inflammatory syndrome characterized by abdominal pain, nausea, and vomiting associated with high serum levels of pancreatic enzymes) unless it is determined to be infectious in origin.

INFECTION SITE: Necrotizing enterocolitis

CODE: GI-NEC

DEFINITION: Necrotizing enterocolitis in infants must meet the following criteria:
 Infant has at least *two* of the following signs or symptoms with no other recognized cause: vomiting, abdominal distention, or prefeeding residuals
and
 persistent microscopic or gross blood in stools
and
 at least *one* of the following abdominal radiographic abnormalities:

- pneumoperitoneum
- pneumatosis intestinalis
- unchanging “rigid” loops of small bowel.

INFECTION SITE: Bronchitis, tracheobronchitis, bronchiolitis, tracheitis, without evidence of pneumonia

CODE: LRI-BRON

DEFINITION: Tracheobronchial infections must meet at least one of the following criteria:

- Criterion 1: Patient has *no* clinical or radiographic evidence of pneumonia
and
 patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), cough, new or increased sputum production, rhonchi, wheezing
and
 at least *one* of the following:
- positive culture obtained by deep tracheal aspirate or bronchoscopy
 - positive antigen test on respiratory secretions
- Criterion 2: Patient ≤ 1 year of age has *no* clinical or radiographic evidence of pneumonia
and
 patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), cough, new or increased sputum production, rhonchi, wheezing, respiratory distress, apnea, or bradycardia
and
 at least *one* of the following:
- organisms cultured from material obtained by deep tracheal aspirate or bronchoscopy
 - positive antigen test on respiratory secretions
 - diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.

REPORTING INSTRUCTION:

- Do *not* report chronic bronchitis in a patient with chronic lung disease as an infection unless there is evidence of an acute secondary infection, manifested by change in organism.

INFECTION SITE: Other infections of the lower respiratory tract

CODE: LRI-LUNG

DEFINITION: Other infections of the lower respiratory tract must meet at least one of the following criteria:

- Criterion 1: Patient has organisms seen on smear or cultured from lung tissue or fluid, including pleural fluid.
- Criterion 2: Patient has a lung abscess or empyema seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has an abscess cavity seen on radiographic examination of lung.

REPORTING INSTRUCTIONS:

- Report concurrent lower respiratory tract infection and pneumonia with the same organism(s) as PNEU.
- Report lung abscess or empyema without pneumonia as LUNG.

INFECTION SITE: Endometritis

CODE: REPR-EMET

DEFINITION: Endometritis must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from fluid or tissue from endometrium obtained during surgical operation, by needle aspiration, or by brush biopsy.
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), abdominal pain, uterine tenderness, or purulent drainage from uterus.

REPORTING INSTRUCTION:

- Report postpartum endometritis as a nosocomial infection *unless* the amniotic fluid is infected at the time of admission or the patient was admitted 48 hours after rupture of the membrane.

INFECTION SITE: Episiotomy

CODE: REPR-EPIS

DEFINITION: Episiotomy infections must meet at least one of the following criteria:

- Criterion 1: Postvaginal delivery patient has purulent drainage from the episiotomy.
- Criterion 2: Postvaginal delivery patient has an episiotomy abscess.

REPORTING INSTRUCTION:

- Episiotomy is not a NNIS operative procedure; do not report as an SSI.

INFECTION SITE: Vaginal cuff

CODE: REPR-VCUF

DEFINITION: Vaginal cuff infections must meet at least one of the following criteria:

- Criterion 1: Posthysterectomy patient has purulent drainage from the vaginal cuff.
- Criterion 2: Posthysterectomy patient has an abscess at the vaginal cuff.
- Criterion 3: Posthysterectomy patient has pathogens cultured from fluid or tissue obtained from the vaginal cuff.

REPORTING INSTRUCTION:

- Most vaginal cuff infections are SSI-VCUF.
- Report only late onset (>30 days after hysterectomy) VCUF as REPR-VCUF.

INFECTION SITE: Other infections of the male or female reproductive tract (epididymis, testes, prostate, vagina, ovaries, uterus, or other deep pelvic tissues, excluding endometritis or vaginal cuff infections)

CODE: REPR-OREP

DEFINITION: Other infections of the male or female reproductive tract must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from tissue or fluid from affected site.
- Criterion 2: Patient has an abscess or other evidence of infection of affected site seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), nausea, vomiting, pain, tenderness, or dysuria
and
at least *one* of the following:
a. organisms cultured from blood
b. diagnosis by physician.

REPORTING INSTRUCTIONS:

- Report endometritis as EMET.
- Report vaginal cuff infections as VCUF.

INFECTION SITE: Skin

CODE: SST-SKIN

DEFINITION: Skin infections must meet at least one of the following criteria:

- Criterion 1: Patient has purulent drainage, pustules, vesicles, or boils.
- Criterion 2: Patient has at least *two* of the following signs or symptoms with no other recognized cause: pain or tenderness, localized swelling, redness, or heat
and
at least *one* of the following:

- a. organisms cultured from aspirate or drainage from affected site; if organisms are normal skin flora (e.g., coagulase negative staphylococci, micrococci, diphtheroids) they must be a pure culture
- b. organisms cultured from blood
- c. positive antigen test performed on infected tissue or blood (e.g., herpes simplex, varicella zoster, *H. influenzae*, *N. meningitidis*)
- d. multinucleated giant cells seen on microscopic examination of affected tissue
- e. diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.

COMMENT:

- Nosocomial skin infections may be the result of exposure to a variety of procedures performed in the hospital. Incisional infections after surgery are identified separately as SSI-SKIN unless the operative procedure is a CBGB. If the chest incision site after a CBGB becomes infected, the specific site is SKNC and if the donor site on the leg becomes infected the specific site is SKNL. Other skin infections associated with important exposures are identified with their own sites and are listed below under Reporting Instructions.

REPORTING INSTRUCTIONS:

- Report omphalitis in infants as UMB.
- Report infections of the circumcision site in newborns as CIRC.
- Report pustules in infants as PUST
- Report infected decubitus ulcers as DECU.
- Report infected burns as BURN.
- Report breast abscesses or mastitis as BRST.

INFECTION SITE: Soft tissue (necrotizing fascitis, infectious gangrene, necrotizing cellulitis, infectious myositis, lymphadenitis, or lymphangitis).

CODE: SST-ST

DEFINITION: Soft tissue infections must meet at least one of the following criteria:

- Criterion 1: Patient has organisms cultured from tissue or drainage from affected site.
- Criterion 2: Patient has purulent drainage at affected site.
- Criterion 3: Patient has an abscess or other evidence of infection seen during a surgical operation or histopathologic examination.
- Criterion 4: Patient has at least *two* of the following signs of symptoms at the affected site

with no other recognized cause: localized pain or tenderness, redness, swelling, or heat

and

at least *one* of the following:

- a. organisms cultured from blood
- b. positive antigen test performed on blood or urine (e.g., *H. influenzae*, *S. pneumoniae*, *N. meningitidis*, group B *Streptococcus*, *Candida* sp.)
- c. diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen.

REPORTING INSTRUCTIONS:

- Report surgical site infections that involve both the skin and deep soft tissue (at or beneath the fascial or muscle layer) as SSI-ST (soft tissue) unless the operative procedure is a CBGB. If skin and deep soft tissue at the chest incision site become infected, the specific site is STC and if skin and deep soft tissue at the donor site on the leg become infected, the specific site is STL.
- Report infected decubitus ulcers as DECU.
- Report infection of deep pelvic tissues as OREP.

INFECTION SITE: Decubitus ulcer, including both superficial and deep infections

CODE: SST-DECU

DEFINITION: Decubitus ulcer infections must meet the following criterion:

Patient has at least *two* of the following signs or symptoms with no other recognized cause: redness, tenderness, or swelling of decubitus wound edges

and

at least *one* of the following:

- a. organisms cultured from properly collected fluid or tissue (see below)
- b. organisms cultured from blood.

COMMENTS:

- Purulent drainage alone is not sufficient evidence of an infection.
- Organisms cultured from the surface of a decubitus ulcer are not sufficient evidence that the ulcer is infected. A properly collected specimen from a decubitus ulcer involves needle aspiration of fluid or biopsy of tissue from the ulcer margin.

INFECTION SITE: Burn

CODE: SST-BURN

DEFINITION: Burn infections must meet one of the following criteria:

- Criterion 1: Patient has a change in burn wound appearance or character, such as rapid eschar separation, or dark brown, black, or violaceous discoloration of the eschar, or edema at wound margin
and
histologic examination of burn biopsy shows invasion of organisms into adjacent viable tissue.
- Criterion 2: Patient has a change in burn wound appearance or character, such as rapid eschar separation, or dark brown, black, or violaceous discoloration of the eschar, or edema at wound margin
and
at least *one* of the following:
- organisms cultured from blood in the absence of other identifiable infection
 - isolation of herpes simplex virus, histologic identification of inclusions by light or electron microscopy or visualization of viral particles by electron microscopy in biopsies or lesion scrapings.
- Criterion 3: Patient with a burn has at least *two* of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$) or hypothermia ($<36^{\circ}\text{C}$), hypotension, oliguria ($<20\text{ cm}^3/\text{hr}$), hyperglycemia at previously tolerated level of dietary carbohydrate, or mental confusion
and
at least *one* of the following:
- histologic examination of burn biopsy shows invasion of organisms into adjacent viable tissue
 - organisms cultured from blood
 - isolation of herpes simplex virus, histologic identification of inclusions by light or electron microscopy, or visualization of viral particles by electron microscopy in biopsies or lesion scrapings.

COMMENTS:

- Purulence alone at the burn wound site is *not* adequate for the diagnosis of burn infection; such purulence may reflect incomplete wound care.
- Fever alone in a burn patient is *not* adequate for the diagnosis of a burn infection since fever may be the result of tissue trauma or the patient may have an infection at another site.
- Surgeons in Regional Burn Centers who take care of burn patients exclusively, may require Criterion 1 for diagnosis of burn infection.

- Hospitals with Regional Burn Centers may further divide burn infections into the following: burn wound site, burn graft site, burn donor site, burn donor site-cadaver; the NNIS system, however, will code all of these as BURN.

INFECTION SITE: Breast abscess of mastitis

CODE: SST-BRST

DEFINITION: A breast abscess or mastitis must meet at least one of the following criteria:

- Criterion 1: Patient has a positive culture of affected breast tissue or fluid obtained by incision and drainage or needle aspiration.
- Criterion 2: Patient has a breast abscess or other evidence of infection seen during a surgical operation or histopathologic examination.
- Criterion 3: Patient has fever ($>38^{\circ}\text{C}$) and local inflammation of the breast
and
physician's diagnosis of breast abscess.

COMMENT:

- Breast abscesses occur most frequently after childbirth. Those that occur within 7 days after childbirth should be considered nosocomial.

INFECTION SITE: Omphalitis

CODE: SST-UMB

DEFINITION: Omphalitis in a newborn (≤ 30 days old) must meet at least one of the following criteria:

- Criterion 1: Patient has erythema and/or serous drainage from umbilicus
and
at least *one* of the following:
- organisms cultured from drainage or needle aspirate
 - organisms cultured from blood.
- Criterion 2: Patient has both erythema and purulence at the umbilicus.

REPORTING INSTRUCTIONS:

- Report infection of the umbilical artery or vein related to umbilical catheterization as CVS-VASC if blood culture is negative or not done.
- Report as nosocomial if infection occurs in a newborn within 7 days of hospital discharge.

INFECTION SITE: Infant pustulosis

CODE: SST-PUST

DEFINITION: Pustulosis in an infant (≤ 12 months old) must meet at least one of the following criteria:

Criterion 1: Infant has *one* or more pustules
and
physician diagnosis of skin infection.

Criterion 2: Infant has *one* or more pustules
and
physician institutes appropriate
antimicrobial therapy.

REPORTING INSTRUCTIONS:

- Do *not* report erythema toxicum and noninfectious causes of pustulosis.
- Report as nosocomial if pustulosis occurs in an infant within 7 days of hospital discharge.

INFECTION SITE: Newborn circumcision

CODE: SST-CIRC

DEFINITION: Circumcision infection in a newborn (≤ 30 days old) must meet at least one of the following criteria:

- Criterion 1: Newborn has purulent drainage from circumcision site.
- Criterion 2: Newborn has at least *one* of the following signs or symptoms with no other recognized cause at circumcision site: erythema, swelling, or tenderness
and
pathogen cultured from circumcision site.
- Criterion 3: Newborn has at least *one* of the following signs or symptoms with no other recognized cause at circumcision site: erythema, swelling, or tenderness
and
skin contaminant (coagulase-negative staphylococci, diphtheroids, *Bacillus* sp., or micrococci) is cultured from circumcision site
and
physician diagnosis of infection or
physician institutes appropriate therapy.

REPORTING INSTRUCTION:

- Newborn circumcision is not a NNIS operative procedure; do not report as an SSI.

INFECTION SITE: Disseminated infection

CODE: SYS-DI

DEFINITION: Disseminated infection is infection involving multiple organs or systems, without an apparent single site of infection, usually of viral origin, and with signs or symptoms with no other recognized cause and compatible with infectious involvement of multiple organs or systems.

REPORTING INSTRUCTIONS:

- This code should be used primarily for viral infections involving multiple organ systems (e.g., measles, mumps, rubella, varicella, erythema infectiosum). These infections often can be identified by clinical criteria alone. Do *not* use this code for nosocomial infections with multiple metastatic sites, such as with bacterial endocarditis; only the primary site of these infections should be reported.
- Fever of unknown origin (FUO) should *not* be reported as DI-SYS.
- Neonatal "sepsis" should be reported as BSI-CSEP.
- Viral exanthems or rash illness should be reported as DI-SYS.

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